STORM WATER MANAGEMENT PLAN
FOR
PALMA DE LA REINA
BY NEWPORT PACIFIC

L-14372

Development Consisting of Commercial and Residential Buildings
And Private Parking Lot

Prepared By:
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4407 Manchester Ave., Suite 105
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Report Prepared By:

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SDE Job No. 4200.02

Storm Water Management Plan
For Priority Projects
(Major SWMP)

The Major Stormwater Management Plan (Major SWMP) must be completed in its entirety and accompany applications to the County for a permit or approval associated with certain types of development projects. To determine whether your project is required to submit a Major or Minor SWMP, please reference the County's Stormwater Intake Form for Development Projects.

Project Name:	Newport Pacific Palma De La Reina
Permit Number (Land Development Projects):	L-14372
Work Authorization Number (**CIP only**):	N/A
Applicant:	San Dieguito Engineering Inc.
Applicant's Address:	4407 Manchester Ave. Ste. 105, Encinitas, CA, 92024
Plan Prepare By (*Leave blank if same as applicant*):	
Date:	2/19/2004
Revision Date (If applicable):	

The County of San Diego Watershed Protection, Storm Water Management, and Discharge Control Ordinance (WPO) (Ordinance No. 9424) requires all applications for a permit or approval associated with a Land Disturbance Activity to be accompanied by a Storm Water Management Plan (SWMP) (section 67.806.b). The purpose of the SWMP is to describe how the project will minimize the short and long-term impacts on receiving water quality. Projects that meet the criteria for a priority development project are required to prepare a Major SWMP.

Since the SWMP is a living document, revisions may be necessary during various stages of approval by the County. Please provide the approval information requested below.

Project Stages	Does the SWMP need revisions?		If YES, Provide Revision Date
	YES	NO	
L-Grading Permit (L-14372)		No	

Instructions for a Major SWMP can be downloaded at http://www.co.san-diego.ca.us/dpw/stormwater/susmp.html.

Completion of the following checklists and attachments will fulfill the requirements of a Major SWMP for the project listed above.

PROJECT DESCRIPTION

Please provide a brief description of the project in the following box. Please include:

- Project Location
- Project Description
- Physical Features (Topography)
- Surrounding Land Use
- Proposed Project Land Use
- Location of dry weather flows (year-round flows in streams, or creeks) within project limits, if applicable.

The 4.31 acre (gross) project is located in the Whispering Palms area of the County of San Diego, at the corner of Via De La Valle and Cancha De Golf (See Attachment A). This project will consist of construction of one office building, two retail buildings for commercial use, and nine buildings containing fifty-four apartments. In order to service the tenants of these buildings, two hundred and twenty parking spaces will be provided on-site. The parking spaces will have access from Via De La Valle, Cancha De Golf and Via De Las Palmas. Assumptions have been made regarding the proposed development, as required, based on the land usage in the surrounding area (Reference Section 1.1). The surrounding area is used for mixed commercial and single family residential purposes.

PRIORITY DEVELOPMENT PROJECT DETERMINATION

Please check the box that best describes the project. Does the project meet one of the following criteria?

Table 1

PRIORITY DEVELOPMENT PROJECT	YES	NO
Redevelopment that creates or adds at least 5,000 net square feet of additional impervious surface area	X	
Residential development of more than 10 units	X	
Commercial developments with a land area for development of greater than 1 acre		X
Heavy industrial development with a land area for development of greater than 1 acre		X
Automotive repair shop(s)		X
Restaurants, where the land area for development is greater than 5,000 square feet		X
Hillside development, in an area with known erosive soil conditions, where there will be grading on any natural slope that is twenty-five percent or greater, if the development creates 5,000 square feet or more of impervious surface		X
Environmentally Sensitive Areas (ESA): All development located within or directly adjacent to or discharging directly to an ESA (where discharges from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.		X
Parking Lots 5,000 square feet or more or with 15 parking spaces or more and potentially exposed to urban runoff	X	
Streets, roads, highways, and freeways which would create a new paved surface that is 5,000 square feet or greater		X
Retail Gasoline Outlets (RGO) that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.		X

Limited Exclusion: Trenching and resurfacing work associated with utility projects are not considered Priority Development Projects. Parking lots, buildings and other structures associated with utility projects are subject to the WPO requirements if one or more of the criteria above are met.

If you answered **NO** to all the questions, then **STOP**. Please complete a Minor SWMP for your project.
If you answered **YES** to any of the questions, please continue.

HYDROMODIFICATION DETERMINATION

The following questions provide a guide to collecting information relevant to hydromodification management issues.

Table 2

	QUESTIONS	YES	NO	Information
1.	Will the proposed project disturb 50 or more acres of land? (Including all phases of development)		X	If YES, continue to 2. If NO, go to 6.
2.	Would the project site discharge directly into channels that are concrete-lined or significantly hardened such as with rip-rap, sackcrete, etc, downstream to their outfall into bays or the ocean?			If NO, continue to 3. If YES, go to 6.
3.	Would the project site discharge directly into underground storm drains discharging directly to bays or the ocean?			If NO, continue to 4. If YES, go to 6.
4.	Would the project site discharge directly to a channel (lined or un-lined) and the combined impervious surfaces downstream from the project site to discharge at the ocean or bay are 70% or greater?			If NO, continue to 5. If YES, go to 6.
5.	Project is required to manage hydromodification impacts.			Hydromodification Management Required as described in Section 67.812 b(4) of the WPO.
6.	Project is not required to manage hydromodification impacts.			Hydromodification Exempt. Keep on file.

An exemption is potentially available for projects that are required (No. 5. in Table 2 above) to manage hydromodification impacts: The project proponent may conduct an independent geomorphic study to determine the project's full hydromodification impact. The study must incorporate sediment transport modeling across the range of geomorphically-significant flows and demonstrate to the County's satisfaction that the project flows and sediment reductions will not detrimentally affect the receiving water to qualify for the exemption.

STORMWATER QUALITY DETERMINATION

The following questions provide a guide to collecting information relevant to project stormwater quality issues. Please provide the following information in a printed report accompanying this form.

Table 3

	QUESTIONS	COMPLETED	NA
1.	Describe the topography of the project area.	FLAT	
2.	Describe the local land use within the project area and adjacent areas.	MIXED USE	
3.	Evaluate the presence of dry weather flow.	NONE	
4.	Determine the receiving waters that may be affected by the project throughout all phases of development (i.e., construction, maintenance and operation).	COMPLETED	
5.	For the project limits, list the 303(d) impaired receiving water bodies and their constituents of concern.	COMPLETED	
6.	Determine if there are any High Risk Areas (which is defined by the presence of municipal or domestic water supply reservoirs or groundwater percolation facilities) within the project limits.	COMPLETED	
7.	Determine the Regional Board special requirements, including TMDLs, effluent limits, etc.	COMPLETED	
8.	Determine the general climate of the project area. Identify annual rainfall and rainfall intensity curves.	COMPLETED	
9.	If considering Treatment BMPs, determine the soil classification, permeability, erodibility, and depth to groundwater.	COMPLETED	
10.	Determine contaminated or hazardous soils within the project area.	COMPLETED	

TREATMENT BMPs DETERMINATION

Complete the checklist below to determine if Treatment Best Management Practices (BMPs) are required for the project.

Table 4

No.	CRITERIA	YES	NO	INFORMATION
1.	Is this an emergency project		X	If YES, go to 6. If NO, continue to 2.
2.	Have TMDLs been established for surface waters within the project limit?	X		If YES, go to 5. If NO, continue to 3.
3.	Will the project directly discharge to a 303(d) impaired receiving water body?			If YES, go to 5. If NO, continue to 4.
4.	Is this project within the environmentally sensitive areas as defined on the maps in Appendix A of the *County of San Diego Standard Urban Storm Water Mitigation Plan for Land Development and Public Improvement Projects*?			If YES, continue to 5. If NO, go to 6.
5.	Provide Treatment BMPs for the project.	X		If YES, go to 7.
6.	Project is not required to provide Treatment BMPs			Document for Project Files by referencing this checklist.
7.	End			

Now that the need for a treatment BMPs has been determined, other information is required to complete the SWMP.

WATERSHED

Please check the watershed(s) for the project.

☐ San Juan 901	☐ Santa Margarita 902	☐ San Luis Rey 903	☐ Carlsbad 904
☒ San Dieguito 905	☐ Penasquitos 906	☐ San Diego 907	☐ Sweetwater 909
☐ Otay 910	☐ Tijuana 911	☐ Whitewater 719	☐ Clark 720
☐ West Salton 721	☐ Anza Borrego 722	☐ Imperial 723	

Please provide the hydrologic sub-area and number(s)

Number	Name
905.11	RANCHO SANTA FE

Please provide the beneficial uses for Inland Surface Waters and Ground Waters. Beneficial Uses can be obtained from the Water Quality Control Plan for the San Diego Basin, which is available at the Regional Board office or at http://www.swrcb.ca.gov/rwqcb9/programs/basinplan.html.

SURFACE WATERS	Hydrologic Unit Basin Number	MUN	AGR	IND	PROC	GWR	FRESH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
Inland Surface Waters	905.11	*	0	0					X	X		X		X		
Ground Waters	N/A															

*** Excepted from Municipal**

X Existing Beneficial Use
0 Potential Beneficial Use

POLLUTANTS OF CONCERN

Using Table 5, identify pollutants that are anticipated to be generated from the proposed priority project categories. Pollutants associated with any hazardous material sites that have been remediated or are not threatened by the proposed project are not considered a pollutant of concern.

Table 5. Anticipated and Potential Pollutants Generated by Land Use Type

	General Pollutant Categories								
PDP Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
Attached Residential Development	X	X			X	P(1)	P(2)	P	X
Commercial Development 1 acre or greater	P(1)	P(1)		P(2)	X	P(5)	X	P(3)	P(5)
Heavy industry /industrial development	X		X	X	X	X	X		
Automotive Repair Shops			X	X(4)(5)	X		X		
Restaurants					X	X	X	X	
Hillside Development >5,000 ft^2	X	X			X	X	X		X
Parking Lots	P(1)	P(1)	X		X	P(1)	X		P(1)
Retail Gasoline Outlets			X	X	X	X	X		
Streets, Highways & Freeways	X	P(1)	X	X(4)	X	P(5)	X		

X = anticipated
P = potential
(1) A potential pollutant if landscaping exists on-site.
(2) A potential pollutant if the project includes uncovered parking areas.
(3) A potential pollutant if land use involves food or animal waste products.
(4) Including petroleum hydrocarbons.
(5) Including solvents.

Note: If other monitoring data that is relevant to the project is available. Please include as Attachment C.

CONSTRUCTION BMPs

Please check the construction BMPs that may be implemented during construction of the project. The applicant will be responsible for the placement and maintenance of the BMPs incorporated into the final project design.

- ☒ Silt Fence
- ☒ Fiber Rolls
- ☒ Street Sweeping and Vacuuming
- ☒ Storm Drain Inlet Protection
- ☒ Stockpile Management
- ☒ Solid Waste Management
- ☒ Stabilized Construction Entrance/Exit
- ☐ Dewatering Operations
- ☒ Vehicle and Equipment Maintenance
- ☐ Desilting Basin
- ☒ Gravel Bag Berm
- ☐ Sandbag Barrier
- ☒ Material Delivery and Storage
- ☒ Spill Prevention and Control
- ☒ Concrete Waste Management
- ☒ Water Conservation Practices
- ☒ Paving and Grinding Operations
- ☒ Any minor slopes created incidental to construction and not subject to a major or minor grading permit shall be protected by covering with plastic or tarp prior to a rain event, and shall have vegetative cover reestablished within 180 days of completion of the slope and prior to final building approval.

EXCEPTIONAL THREAT TO WATER QUALITY DETERMINATION

Complete the checklist below to determine if a proposed project will pose an "exceptional threat to water quality," and therefore require Advanced Treatment Best Management Practices.

Table 6

No.	CRITERIA	YES	NO	INFORMATION
1.	Is all or part of the proposed project site within 200 feet of waters named on the Clean Water Act (CWA) Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity? Current 303d list may be obtained from the following site: http://www.swrcb.ca.gov/tmdl/docs/303dlists2006/approved/r9_06_303d_reqtmdls.pdf		X	If YES, continue to 2. If NO, go to 5.
2.	Will the project disturb more than 5 acres, including all phases of the development?			If YES, continue to 3. If NO, go to 5.
3.	Will the project disturb slopes that are steeper than 4:1 (horizontal: vertical) with at least 10 feet of relief, and that drain toward the 303(d) listed receiving water for sedimentation and/or turbidity?			If YES, continue to 4. If NO, go to 5.
4.	Will the project disturb soils with a predominance of USDA-NRCS Erosion factors k_f greater than or equal to 0.4?			If YES, continue to 6. If NO, go to 5.
5.	Project is not required to use Advanced Treatment BMPs.	X		Document for Project Files by referencing this checklist.
6.	Project poses an "exceptional threat to water quality" and is required to use Advanced Treatment BMPs.			Advanced Treatment BMPs must be consistent with WPO section 67.811(b)(20)(D) performance criteria

Exemption potentially available for projects that require advanced treatment:
Project proponent may perform a Revised Universal Soil Loss Equation, Version 2 (RUSLE 2), Modified Universal Soil Loss Equation (MUSLE), or similar analysis that shows to the County official's satisfaction that advanced treatment is not required

Now that the need for treatment BMPs has been determined, other information is needed to complete the SWMP.

SITE DESIGN

To minimize stormwater impacts, site design measures must be addressed. The following checklist provides options for avoiding or reducing potential impacts during project planning. If YES is checked, it is assumed that the measure was used for this project.

Table 7

	OPTIONS		YES	NO	N/A
1.	Has the project been located and road improvements aligned to avoid or minimize impacts to receiving waters or to increase the preservation of critical (or problematic) areas such as floodplains, steep slopes, wetlands, and areas with erosive or unstable soil conditions?		X		
2.	Is the project designed to minimize impervious footprint?		X		
3.	Is the project conserving natural areas where feasible?		X		
4.	Where landscape is proposed, are rooftops, impervious sidewalks, walkways, trails and patios be drained into adjacent landscaping?		X		
5.	For roadway projects, are structures and bridges be designed or located to reduce work in live streams and minimize construction impacts?				X
6.	Can any of the following methods be utilized to minimize erosion from slopes:				
	6.a.	Disturbing existing slopes only when necessary?	X		
	6.b.	Minimize cut and fill areas to reduce slope lengths?	X		
	6.c.	Incorporating retaining walls to reduce steepness of slopes or to shorten slopes?	X		
	6.d.	Providing benches or terraces on high cut and fill slopes to reduce concentration of flows?	X		
	6.e.	Rounding and shaping slopes to reduce concentrated flow?	X		
	6.f.	Collecting concentrated flows in stabilized drains and channels?	X		

LOW IMPACT DEVELOPMENT (LID)

Each numbered item below is a LID requirement of the WPO. Please check the box(s) under each number that best describes the Low Impact Development BMP(s) selected for this project.

Table 8

1. Conserve natural Areas, Soils, and Vegetation-County LID Handbook 2.2.1
☐ Preserve well draining soils (Type A or B)
☐ Preserve Significant Trees
☐ Other. Description:
☒ 1. Not feasible. State Reason: ALL OF THE PROPERTY IS BEING DEVELOPED.
2. Minimize Disturbance to Natural Drainages-County LID Handbook 2.2.2
☐ Set-back development envelope from drainages
Restrict heavy construction equipment access to planned green/open space areas
☐ Other. Description:
☒ 2. Not feasible. State Reason: NO NATURAL DRAINAGE AREAS NEARBY. EXISTING STORMDRAIN FACILITIES IMMEDIATELY OFFSITE.
3. Minimize and Disconnect Impervious Surfaces (see 5) -County LID Handbook 2.2.3
☐ Clustered Lot Design
☒ Items checked in 5?
☐ Other. Description:
☐ 3. Not feasible. State Reason:
4. Minimize Soil Compaction-County LID Handbook 2.2.4
☒ Restrict heavy construction equipment access to planned green/open space areas
☒ Re-till soils compacted by construction vehicles/equipment
☒ Collect & re-use upper soil layers of development site containing organic materials
☐ Other. Description:
4. Not feasible. State Reason:
5. Drain Runoff from Impervious Surfaces to Pervious Areas-County LID Handbook 2.2.5

LID Street & Road Design
☐ Curb-cuts to landscaping
☐ Rural Swales
☐ Concave Median
☐ Cul-de-sac Landscaping Design
☒ Other. Description: RUN-OFF FROM PAVED SURFACES DRAINS TO BIO-SWALE PRIOR TO LEAVING SITE.
LID Parking Lot Design
☐ Permeable Pavements
☐ Curb-cuts to landscaping
☒ Other. Description: RUN-OFF FROM PAVED SURFACES DRAINS TO BIO-SWALE PRIOR TO LEAVING SITE.
LID Driveway, Sidewalk, Bike-path Design
☐ Permeable Pavements
☐ Pitch pavements toward landscaping
☒ Other. Description: RUN-OFF FROM PAVED SURFACES DRAINS TO BIO-SWALE PRIOR TO LEAVING SITE.
LID Building Design
☐ Cisterns & Rain Barrels
☐ Downspout to swale
☐ Vegetated Roofs
☒ Other. Description: RUN-OFF FROM PAVED SURFACES DRAINS TO BIO-SWALE PRIOR TO LEAVING SITE.
LID Landscaping Design
☒ Soil Amendments
☒ Reuse of Native Soils
☒ Smart Irrigation Systems
☐ Street Trees
☒ Other. Description: FOUNDATION PLANTING.
☐ 5. Not feasible. State Reason:

CHANNELS & DRAINAGES

Complete the following checklist to determine if the project includes work in channels.

Table 9

No.	CRITERIA	YES	NO	N/A	COMMENTS
1.	Will the project include work in channels?		X		If YES go to 2 If NO go to 13.
2.	Will the project increase velocity or volume of downstream flow?				If YES go to 6.
3.	Will the project discharge to unlined channels?				If YES go to. 6.
4.	Will the project increase potential sediment load of downstream flow?				If YES go to 6.
5.	Will the project encroach, cross, realign, or cause other hydraulic changes to a stream that may affect downstream channel stability?				If YES go to 8.
6.	Review channel lining materials and design for stream bank erosion.				Continue to 7.
7.	Consider channel erosion control measures within the project limits as well as downstream. Consider scour velocity.				Continue to 8.
8.	Include, where appropriate, energy dissipation devices at culverts.				Continue to 9.
9.	Ensure all transitions between culvert outlets/headwalls/wingwalls and channels are smooth to reduce turbulence and scour.				Continue to 10.
10.	Include, if appropriate, detention facilities to reduce peak discharges.				
11.	"Hardening" natural downstream areas to prevent erosion is not an acceptable technique for protecting channel slopes, unless pre-development conditions are determined to be so erosive that hardening would be required even in the absence of the proposed development.				Continue to 12.
12.	Provide other design principles that are comparable and equally effective.				Continue to 13.
13.	End				

SOURCE CONTROL

Please complete the following checklist for Source Control BMPs. If the BMP is not applicable for this project, then check N/A only at the main category.

Table 10

	BMP		YES	NO	N/A
1.	**Provide Storm Drain System Stenciling and Signage**				
	1.a.	All storm drain inlets and catch basins within the project area shall have a stencil or tile placed with prohibitive language (such as: "NO DUMPING – DRAINS TO _____") and/or graphical icons to discourage illegal dumping.	X		
	1.b.	Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks within the project area.	X		
2.	**Design Outdoors Material Storage Areas to Reduce Pollution Introduction**				
	2.a.	This is a detached single-family residential project. Therefore, personal storage areas are exempt from this requirement.		X	
	2.b.	Hazardous materials with the potential to contaminate urban runoff shall either be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure that prevents contact with runoff or spillage to the storm water conveyance system; or (2) protected by secondary containment structures such as berms, dikes, or curbs.	X		
	2.c.	The storage area shall be paved and sufficiently impervious to contain leaks and spills.	X		
	2.d.	The storage area shall have a roof or awning to minimize direct precipitation within the secondary containment area.	X		
3.	**Design Trash Storage Areas to Reduce Pollution Introduction**				
	3.a.	Paved with an impervious surface, designed not to allow run-on from adjoining areas, screened or walled to prevent off-site transport of trash; or,	X		
	3.b.	Provide attached lids on all trash containers that exclude rain, or roof or awning to minimize direct precipitation.	X		
4.	**Use Efficient Irrigation Systems & Landscape Design**				
	The following methods to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible.		X		
	4.a.	Employing rain shutoff devices to prevent irrigation after precipitation.	X		
	4.b.	Designing irrigation systems to each landscape area's specific water requirements.	X		
	4.c.	Using flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.	X		
	4.d.	Employing other comparable, equally effective, methods to reduce irrigation water runoff.			X
5.	**Private Roads**				

	BMP		YES	NO	N/A
	The design of private roadway drainage shall use at least one of the following				
	5.a.	Rural swale system: street sheet flows to vegetated swale or gravel shoulder, curbs at street corners, culverts under driveways and street crossings.			X
	5.b.	Urban curb/swale system: street slopes to curb, periodic swale inlets drain to vegetated swale/biofilter.			X
	5.c.	Dual drainage system: First flush captured in street catch basins and discharged to adjacent vegetated swale or gravel shoulder, high flows connect directly to storm water conveyance system.			X
	5.d.	Other methods that are comparable and equally effective within the project.			X
6.	**Residential Driveways & Guest Parking**				
	The design of driveways and private residential parking areas shall use one at least of the following features.				
	6.a.	Design driveways with shared access, flared (single lane at street) or wheelstrips (paving only under tires); or, drain into landscaping prior to discharging to the storm water conveyance system.		X	
	6.b.	Uncovered temporary or guest parking on private residential lots may be: paved with a permeable surface; or, designed to drain into landscaping prior to discharging to the storm water conveyance system.		X	
	6.c.	Other features which are comparable and equally effective.	X		
7.	**Dock Areas**				
	Loading/unloading dock areas shall include the following.				
	7.a.	Cover loading dock areas, or design drainage to preclude urban run-on and runoff.			X
	7.b.	Direct connections to storm drains from depressed loading docks (truck wells) are prohibited.			X
	7.c.	Other features which are comparable and equally effective.			X
8.	**Maintenance Bays**				
	Maintenance bays shall include the following.				
	8.a.	Repair/maintenance bays shall be indoors; or, designed to preclude urban run-on and runoff.			X
	8.b.	Design a repair/maintenance bay drainage system to capture all wash water, leaks and spills. Connect drains to a sump for collection and disposal. Direct connection of the repair/maintenance bays to the storm drain system is prohibited. If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.			X
	8.c.	Other features which are comparable and equally effective.			X
9.	**Vehicle Wash Areas**				
	Priority projects that include areas for washing/steam cleaning of vehicles shall use the following.				
	9.a.	Self-contained; or covered with a roof or overhang.			X
	9.b.	Equipped with a clarifier or other pretreatment facility.			X
	9.c.	Properly connected to a sanitary sewer.			X
	9.d.	Other features which are comparable and equally effective.			X

	BMP		YES	NO	N/A
10.	**Outdoor Processing Areas**				
	Outdoor process equipment operations, such as rock grinding or crushing, painting or coating, grinding or sanding, degreasing or parts cleaning, waste piles, and wastewater and solid waste treatment and disposal, and other operations determined to be a potential threat to water quality by the County shall adhere to the following requirements.				
	10.a.	Cover or enclose areas that would be the most significant source of pollutants; or, slope the area toward a dead-end sump; or, discharge to the sanitary sewer system following appropriate treatment in accordance with conditions established by the applicable sewer agency.			X
	10.b.	Grade or berm area to prevent run-on from surrounding areas.			X
	10.c.	Installation of storm drains in areas of equipment repair is prohibited.			X
	10.d.	Other features which are comparable or equally effective.			X
11.	**Equipment Wash Areas**				
	Outdoor equipment/accessory washing and steam cleaning activities shall be.				
	11.a.	Be self-contained; or covered with a roof or overhang.			X
	11.b.	Be equipped with a clarifier, grease trap or other pretreatment facility, as appropriate			X
	11.c.	Be properly connected to a sanitary sewer.			X
	11.d.	Other features which are comparable or equally effective.			X
12.	**Parking Areas**				
	The following design concepts shall be considered, and incorporated and implemented where determined applicable and feasible by the County.				
	12.a.	Where landscaping is proposed in parking areas, incorporate landscape areas into the drainage design.	X		
	12.b.	Overflow parking (parking stalls provided in excess of the County's minimum parking requirements) may be constructed with permeable paving.			X
	12.c.	Other design concepts that are comparable and equally effective.			X
13.	**Fueling Area**				
	Non-retail fuel dispensing areas shall contain the following.				
	13.a.	Overhanging roof structure or canopy. The cover's minimum dimensions must be equal to or greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area. The fueling area shall drain to the project's treatment control BMP(s) prior to discharging to the storm water conveyance system.			X
	13.b.	Paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.			X
	13.c.	Have an appropriate slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of urban runoff.			X

		BMP	YES	NO	N/A
	13.d.	At a minimum, the concrete fuel dispensing area must extend 6.5 feet (2.0 meters) from the corner of each fuel dispenser, or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.			X

Please list other project specific Source Control BMPs in the following box. Write **N/A** if there are none.

TREATMENT CONTROL

To select a structural treatment BMP using Treatment Control BMP Selection Matrix (Table 11), each priority project shall compare the list of pollutants for which the downstream receiving waters are impaired (if any), with the pollutants anticipated to be generated by the project (as identified in Table 5). Any pollutants identified by Table 5, which are also causing a Clean Water Act section 303(d) impairment of the receiving waters of the project, shall be considered primary pollutants of concern. Priority projects that are anticipated to generate a primary pollutant of concern shall select a single or combination of stormwater BMPs from Table 11, which **maximizes pollutant removal** for the particular primary pollutant(s) of concern.

Priority development projects that are **not** anticipated to generate a pollutant for which the receiving water is CWA 303(d) impaired shall select a single or combination of stormwater BMPs from Table 11, which are effective for pollutant removal of the identified secondary pollutants of concern, consistent with the "maximum extent practicable" standard.

Table 11. Treatment Control BMP Selection Matrix

Pollutants of Concern	Bioretention Facilities (LID)*	Settling Basins (Dry Ponds)	Wet Ponds and Wetlands	Infiltration Facilities or Practices (LID)*	Media Filters	High-rate biofilters	High-rate media filters	Trash Racks & Hydro -dynamic Devices
Coarse Sediment and Trash	High	High	High	High	High	High	High	High
Pollutants that tend to associate with fine particles during treatment	High	High	High	High	High	Medium	Medium	Low
Pollutants that tend to be dissolved following treatment	Medium	Low	Medium	High	Low	Low	Low	Low

*Additional information is available in the County of San Diego LID Handbook.

NOTES ON POLLUTANTS OF CONCERN:
In Table 12, Pollutants of Concern are grouped as gross pollutants, pollutants that tend to associate with fine particles, and pollutants that remain dissolved.

Table 12

Pollutant	Coarse Sediment and Trash	Pollutants that tend to associate with fine particles during treatment	Pollutants that tend to be dissolved following treatment
Sediment	X	X	
Nutrients		X	X
Heavy Metals		X	
Organic Compounds		X	
Trash & Debris	X		
Oxygen Demanding		X	
Bacteria		X	
Oil & Grease		X	
Pesticides		X	

A Treatment BMP must address runoff from developed areas. Please provide the post-construction water quality values for the project. Label outfalls on the BMP map. The Water Quality peak rate of discharge flow (Q_{WQ}) and the Water Quality storage volume (V_{WQ}) is dependent on the type of treatment BMP selected for the project.

Outfall	Tributary Area (acres)	Q_{WQ} (cfs)	V_{WQ} (ft^3)

SEE ATTACHED HYDROLOGY REPORT

Please check the box(s) that best describes the Treatment BMP(s) selected for this project.

Biofilters
☒ Bioretention swale
☒ Vegetated filter strip
☐ Stormwater Planter Box (open-bottomed)
☐ Stormwater Flow-Through Planter (sealed bottom)
☐ Bioretention Area
☐ Vegetated Roofs/Modules/Walls
Detention Basins
☐ Extended/dry detention basin with grass/vegetated lining
☐ Extended/dry detention basin with impervious lining
Infiltration Basins
☐ Infiltration basin
☐ Infiltration trench
☐ Dry well
☐ Permeable Paving
☐ Gravel
☐ Permeable asphalt
☐ Pervious concrete
☐ Unit pavers, ungrouted, set on sand or gravel
☐ Subsurface reservoir bed
Wet Ponds or Wetlands
☐ Wet pond/basin (permanent pool)
☐ Constructed wetland
Filtration
☐ Media filtration
☐ Sand filtration
Hydrodynamic Separator Systems
☐ Swirl Concentrator
☐ Cyclone Separator
Trash Racks and Screens

Include Treatment Datasheet as Attachment E. The datasheet should include the following:	**COMPLETED**	**NO**
1. Description of how treatment BMP was designed. Provide a description for each type of treatment BMP.	X	
2. Engineering calculations for the BMP(s)	X	

Please describe why the selected treatment BMP(s) was selected for this project. For projects utilizing a low performing BMP, please provide a detailed explanation.

BIO-SWALES WERE USED AS A BMP DUE TO THEIR RELATIVE COST EFFICIENCY, EASE OF CONSTRUCTION, AND LOW MAINTENANCE REQUIREMENTS. OFFSITE, SECONDARY BMP IS THE EXISTING GOLF COURSE WHICH IS ALSO A BIO-SWALE.

MAINTENANCE

Please check the box that best describes the maintenance mechanism(s) for this project. Guidelines for each category are located in Chapter 5, Section 5.2 of the County SUSMP.

CATEGORY	SELECTED	
	YES	NO
First	X	
Second[1]		
Third[1]		
Fourth		

Note:

1. Projects in Category 2 or 3 may choose to establish or be included in a Stormwater Maintenance Assessment District for the long-term maintenance of treatment BMPs.

ATTACHMENTS

Please include the following attachments.

ATTACHMENT		COMPLETED	N/A
A	Project Location Map	X	
B	Site Map	X	
C	Relevant Monitoring Data		X
D	LID and Treatment BMP Location Map	X	
E	Treatment BMP Datasheets	X	
F	Operation and Maintenance Program for Treatment BMPs	X	
G	Fiscal Resources	X	
H	Certification Sheet	X	
I	Addendum	X	

Note: Attachments A and B may be combined.

ATTACHMENTS A&B

SITE/LOCATION MAP

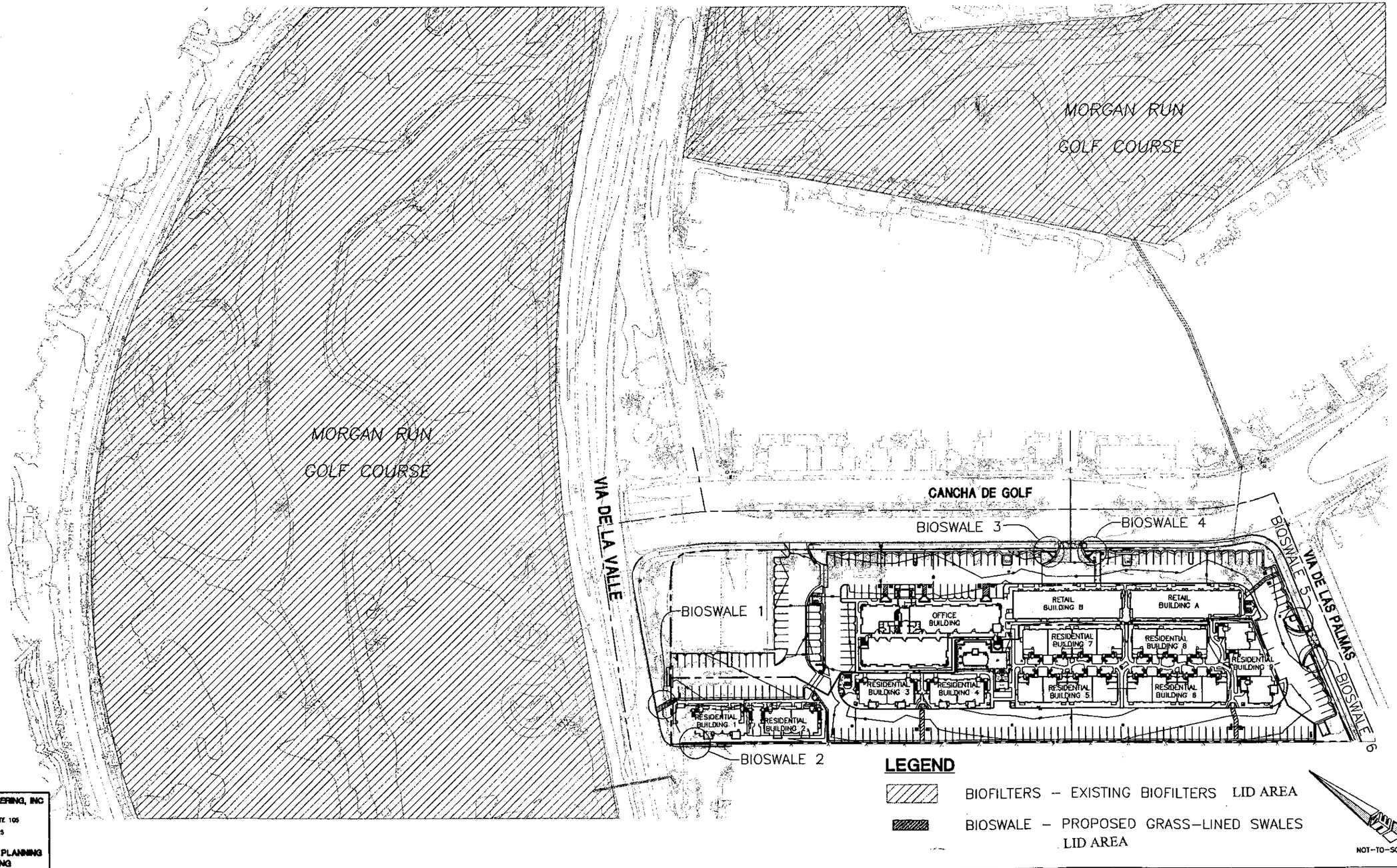
PROJECT LOCATION/SITE MAP

ATTACHMENT D

LID AND TREATMENT BMP LOCATION MAP

PALMA DE LA REINA

TREATMENT BMP LOCATION MAP AND LID AREAS



LEGEND

BIOFILTERS – EXISTING BIOFILTERS LID AREA

BIOSWALE – PROPOSED GRASS–LINED SWALES LID AREA

NOT–TO–SCALE

SAN DIEGUITO ENGINEERING, INC
4407 MANCHESTER, SUITE 105
ENCINITAS, CA 92024
PHONE: (760) 753–5525
CIVIL ENGINEERING • PLANNING
LAND SURVEYING

ENGINEER'S NAME: SAN DIEGUITO ENGINEERING
PHONE NO. (760) 753–5525

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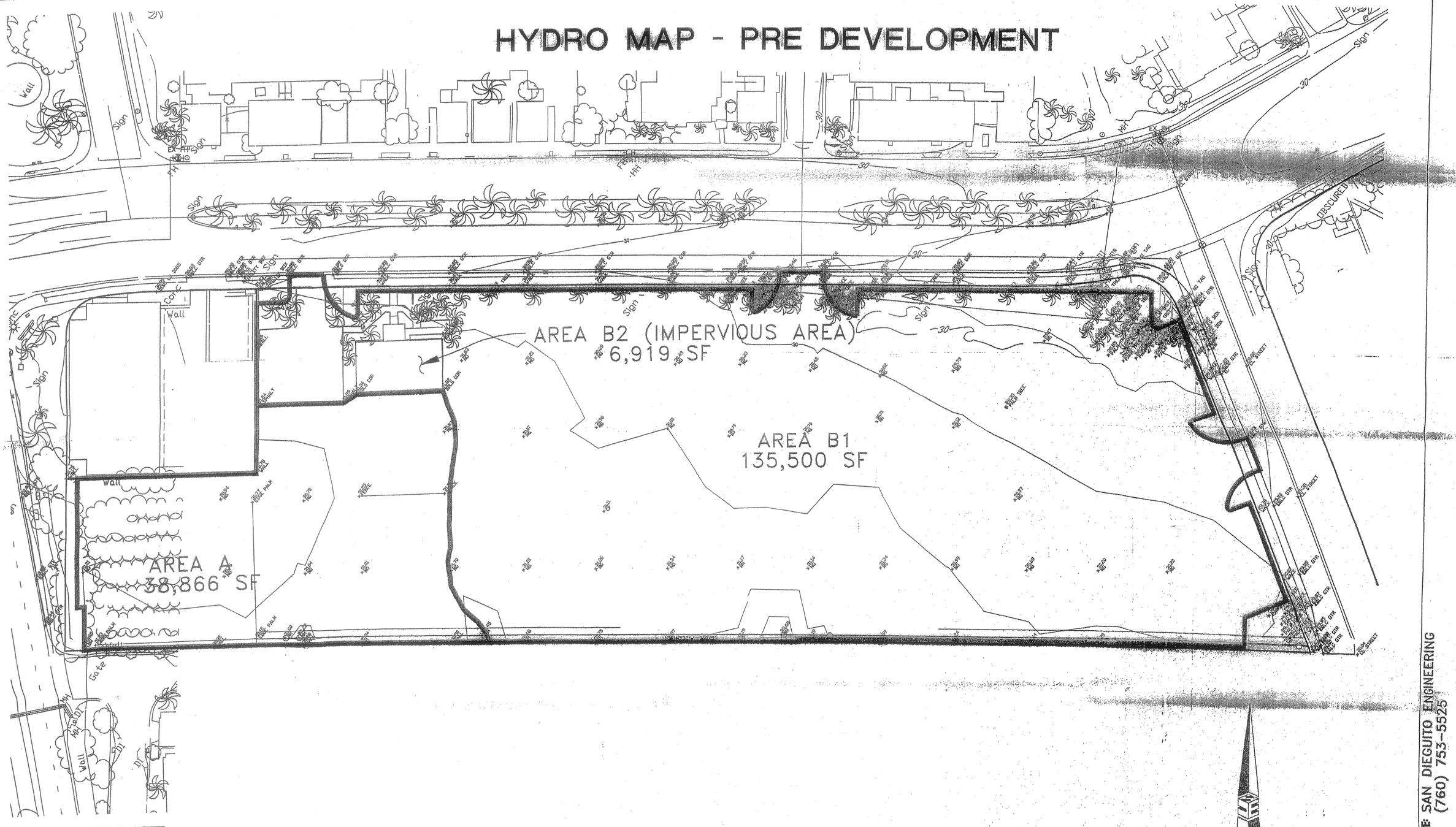
FILE NO.4200.02

ATTACHMENT E

TREATMENT BMP DATASHEET

*(**NOTE:** POSSIBLE SOURCE FOR DATASHEETS CAN BE FOUND AT WWW.CABMPHANDBOOKS.COM. INCLUDE ENGINEERING CALCULATIONS FOR SIZING THE TREATMENT BMP.)*

HYDRO MAP - PRE DEVELOPMENT



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4407 MANCHESTER, SUITE 105
ENCINITAS, CA 92024
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CIVIL ENGINEERING • PLANNING
LAND SURVEYING

ENGINEER'S NAME: SAN DIEGUITO ENGINEERING
PHONE NO. (760) 753-5525

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FILE NO.4200.02

HYDRO MAP - POST DEVELOPMENT

EXISTING DRAINAGE STRUCTURE

DP-F1 Q100=0.88 cfs V100=3.07 fps

Q100=0.24 cfs V100=2.31 fps

Q100=1.01 cfs V100=3.30 fps

Q100=0.64 cfs V100=1.80 fps

Q100=0.29 cfs V100=3.08 fps

Q100=1.44 cfs V100=5.23 fps

Q100=0.60 cfs V100=3.06 fps

Q100=0.92 cfs V100=3.26 fps

Q100=0.82 cfs V100=1.92 fps

Q100=0.55 cfs V100=2.54 fps

Q100=0.29 cfs V100=2.82 fps

Q100=1.15 cfs V100=4.78 fps

PROPOSED BIOSWALE 1

PROPOSED BIOSWALE 2

PROPOSED BIOSWALE 3

PROPOSED BIOSWALE 4

PROPOSED BIOSWALE 5

PROPOSED BIOSWALE 6

EX. 50"X31" CMPA

EX. DOUBLE 4' BOX CULVERT, H=8'

EX. TYPE K CATCH BASIN

EX. 2" G

EX. SD CLEANOUT D-9

EX. 24" CMP

EX. TYPE-B INLET PER D-2

LEGEND

	DIRECTION OF FLOW
DP-C4	DESIGN POINT OF CONCENTRATION
D4	WATERSHED BASIN AREA
	PROPOSED INFILTRATION BASINS
	PROPOSED DRAINAGE STRUCTURES
	PROPOSED BIOSWALE

SCALE 1" = 30'

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LAND SURVEYING

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ENGINEER'S NAME: SAN DIEGUITO ENGINEERING
PHONE NO. (760) 753-5525

FILE NO.4200.02

Bioswale 1 - Q100 Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.030	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	4.00	ft
Discharge	1.10	ft^3/s

Results

Normal Depth	0.17	ft
Flow Area	0.78	ft^2
Wetted Perimeter	5.09	ft
Top Width	5.03	ft
Critical Depth	0.13	ft
Critical Slope	0.02702	ft/ft
Velocity	1.42	ft/s
Velocity Head	0.03	ft
Specific Energy	0.20	ft
Froude Number	0.63	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.17	ft
Critical Depth	0.13	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.02702	ft/ft

Cross Section for Bioswale 1 - Q100 Calculations

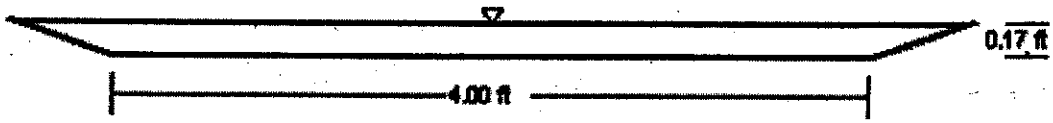
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.030	
Channel Slope	0.01000	ft/ft
Normal Depth	0.17	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	4.00	ft
Discharge	1.10	ft³/s

Cross Section Image



Channel Design

Channel Design depth = FS elev - FL elev where
FS elev = finished surface elevation (ft) and FL elev = Channel flowline elevation ft.
normal depth = depth of water (ft) in channel based on Q100. (3:1 H:1)
If Channel design depth > normal depth then design ok.

Channel design depth = 28.96' - 28.22' = 0.74'
normal depth = 0.17

0.74' > 0.17 ∴ OK

Bioswale 1 - Qwq Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	4.00	ft
Discharge	0.15	ft^3/s

Results

Normal Depth	0.18	ft
Flow Area	0.82	ft^2
Wetted Perimeter	5.14	ft
Top Width	5.09	ft
Critical Depth	0.04	ft
Critical Slope	2.59279	ft/ft
Velocity	0.18	ft/s
Velocity Head	0.00	ft
Specific Energy	0.18	ft
Froude Number	0.08	
Flow Type	Subcritical	

Downstream Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

Upstream Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.18	ft
Critical Depth	0.04	ft
Channel Slope	0.01000	ft/ft
Critical Slope	2.59279	ft/ft

Cross Section for Bioswale 1 - Qwq Calculations

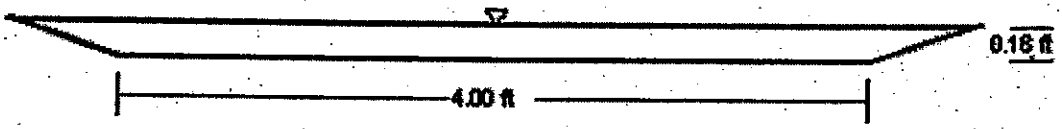
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Normal Depth	0.18	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	4.00	ft
Discharge	0.15	ft³/s

Cross Section Image



Required Channel Length calculation

$L_{REQ} = (T_{treatment\,min})(V_{wq})$ where:

L_{REQ} is the channel length (ft) required to achieve the minimum treatment time of 5 minutes for first flush.

$T_{treatment\,min}$ is the minimum treatment time of 5 minutes per San Diego County Standards

V_{wq} is the channel water velocity (FPS) based on Qwq.

In order to prevent loss of parking spaces, a time of treatment of 2.14 minutes was used, and is to be considered the maximum extent practicable.

$$L = (T_T)(V_{wq})$$

$$23.16\,ft = (T_T)(0.18\,fps)$$

$$T_T = \frac{23.16\,ft}{0.18\,fps} = 128.4\,sec = 2.14\,min$$

Bioswale 2 - Q100 Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.030	
Channel Slope	0.00500	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	0.64	ft^3/s

Results

Normal Depth	0.42	ft
Flow Area	0.53	ft^2
Wetted Perimeter	2.67	ft
Top Width	2.53	ft
Critical Depth	0.31	ft
Critical Slope	0.02621	ft/ft
Velocity	1.20	ft/s
Velocity Head	0.02	ft
Specific Energy	0.44	ft
Froude Number	0.46	
Flow Type	Subcritical	

EGL Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

EGL Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.42	ft
Critical Depth	0.31	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.02621	ft/ft

Cross Section for Bioswale 2 - Q100 Calculations

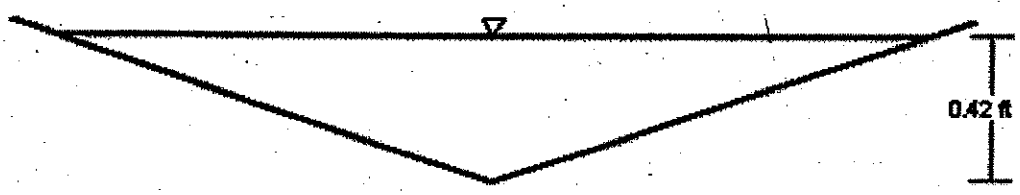
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.030	
Channel Slope	0.00500	ft/ft
Normal Depth	0.42	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	0.64	ft³/s

Cross Section for Bioswale



Channel Design

Channel Design depth = FS elev - FL elev where FS elev = finished surface elevation (ft) and FL elev = channel flowline elevation ft.

normal depth = depth of water (ft) in channel based on Q100. V:1 H:1

If Channel design depth > normal depth then design ok.

Channel Design depth = 30.76' - 29.89 = 0.87 ft

Normal depth = 0.42 ft

0.87 ft > 0.42 ft ∴ ok

Bioswale 2 - Qwq Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.00500	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	0.02	ft³/s

Results

Normal Depth	0.25	ft
Flow Area	0.19	ft²
Wetted Perimeter	1.59	ft
Top Width	1.50	ft
Critical Depth	0.08	ft
Critical Slope	2.66397	ft/ft
Velocity	0.11	ft/s
Velocity Head	0.00	ft
Specific Energy	0.25	ft
Froude Number	0.05	
Flow Type	Subcritical	

Downstream Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

Upstream Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.25	ft
Critical Depth	0.08	ft
Channel Slope	0.00500	ft/ft
Critical Slope	2.66397	ft/ft

Cross Section for Bioswale 2 - Qwq Calculations

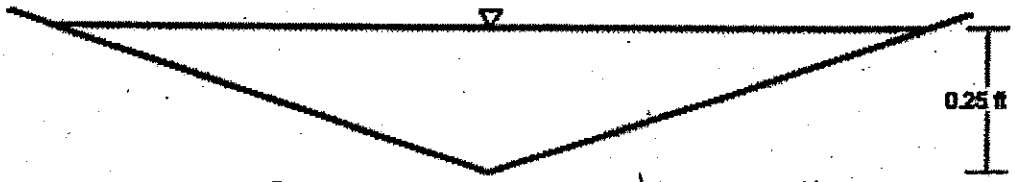
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.00500	ft/ft
Normal Depth	0.25	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	0.02	ft³/s

Cross Section Image



Required Channel Length calculation

$L_{REQ} = (T_{treatment\,min})(V_{wq})$ where:

L_{REQ} is the channel length (ft) required to achieve the minimum treatment time of 5 minutes for first flush.

$T_{treatment\,min}$ is the minimum treatment time of 5 minutes per San Diego County Standards

V:1 H:1

V_{wq} is the channel water velocity (FPS) based on Q_{wq}.

$L_{REQ} = (5\text{ minutes} \times 60\text{ sec/min})(0.11\text{ ft/s})$

$L_{REQ} = (300\text{ sec})(0.11\text{ ft/s})$

$L_{REQ} = 33\text{ ft}$

Bioswale Design Data

$L = 35\text{ft}$ $\quad Q_{wq} = 0.02\text{ cfs}$

$T_T = 5\text{min } 18\text{ sec}$ $\quad V_{wq} = 0.11\text{ fps}$

Qwq CALCULATIONS FOR BIOSWALES 3 - 6

BIOSWALE*	RUN-OFF COEFFICIENT "C" FROM HYDROLOGY MANUAL	INTENSITY "I"	SUB-AREAS DRAINING TO BIOSWALE	SUB-AREAS "A" (AC)	Qwq(CFS)
3	0.80	0.20	E5	0.27	**0.04**
4	0.80	0.20	B3	0.22	**0.04**
5	0.80	0.20	A2	0.20	**0.03**
6	0.80	0.20	C3,C4	0.59	**0.09**

NOTE: THE RUN-OFF COEFFICIENT USED FOR THESE CALCULATIONS WAS BASED ON TABLE 3-1 OF SAN DIEGO COUNTY HYDROLOGY MANUAL. ACCORDING TO HYDROLOGIC SOIL GROUPS MAP SHEET 43, THE PROJECT SITE IS LOCATED ON SOIL TYPE A. USING THIS DATA IN CONJUCTION WITH TABLE 3-1 YIELDED A RUN-OFF COEFFICIENT OF 0.80.

*** SEE BMP LOCATION MAP FOR BIOSWALE LOCATIONS.**

Bioswale 3 - Qwq Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.00	ft
Discharge	0.04	ft^3/s

Results

Normal Depth	0.21	ft
Flow Area	0.22	ft^2
Wetted Perimeter	1.44	ft
Top Width	1.14	ft
Critical Depth	0.04	ft
Critical Slope	2.71544	ft/ft
Velocity	0.18	ft/s
Velocity Head	0.00	ft
Specific Energy	0.21	ft
Froude Number	0.07	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.21	ft
Critical Depth	0.04	ft
Channel Slope	0.01000	ft/ft
Critical Slope	2.71544	ft/ft

Cross Section for Bioswale 3 - Qwq Calculations

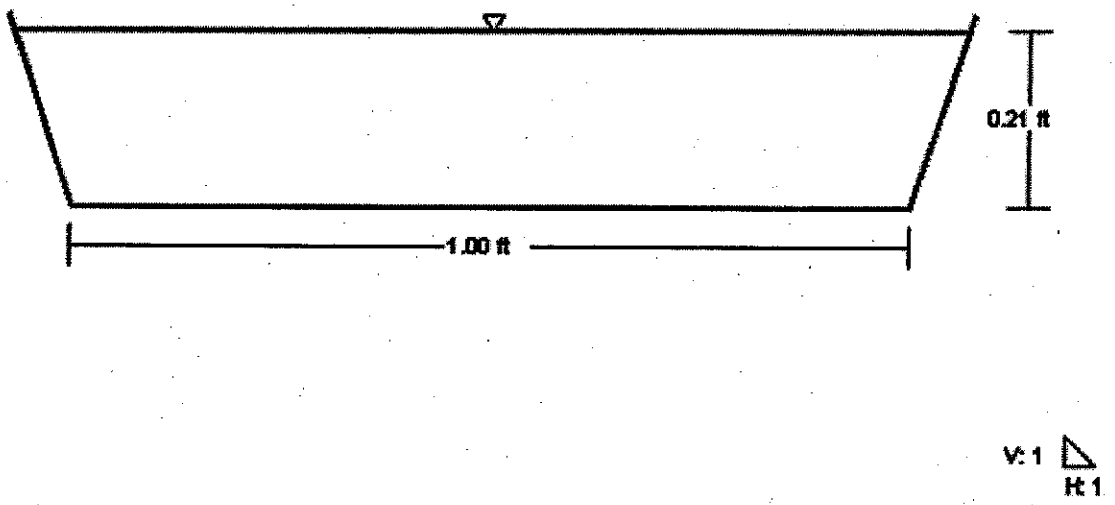
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Normal Depth	0.21	ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.00	ft
Discharge	0.04	ft^3/s

Cross Section Image



Bioswale 4 - Qwq Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.00	ft
Discharge	0.04	ft^3/s

Results

Normal Depth	0.21	ft
Flow Area	0.22	ft^2
Wetted Perimeter	1.44	ft
Top Width	1.14	ft
Critical Depth	0.04	ft
Critical Slope	2.71544	ft/ft
Velocity	0.18	ft/s
Velocity Head	0.00	ft
Specific Energy	0.21	ft
Froude Number	0.07	
Flow Type	Subcritical	

SVT Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

SVT Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.21	ft
Critical Depth	0.04	ft
Channel Slope	0.01000	ft/ft
Critical Slope	2.71544	ft/ft

Cross Section for Bioswale 4 - Qwq Calculations

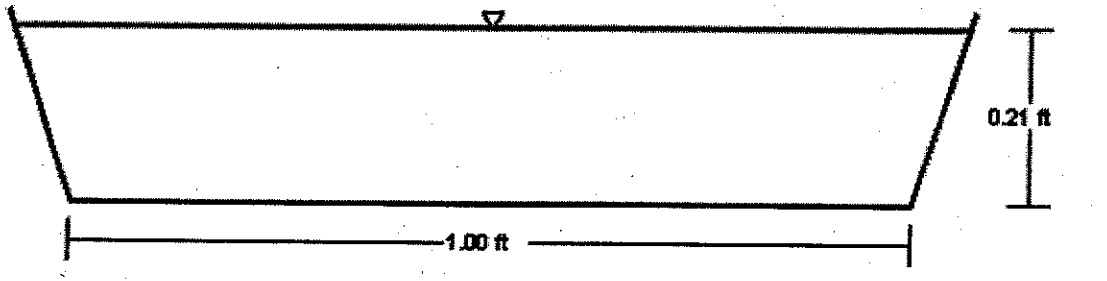
Project Description

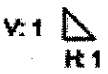
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Normal Depth	0.21	ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.00	ft
Discharge	0.04	ft^3/s

Cross Section Image





Bioswale 5 - Qwq Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.50	ft
Discharge	0.03	ft^3/s

Results

Normal Depth	0.13	ft
Flow Area	0.20	ft^2
Wetted Perimeter	1.78	ft
Top Width	1.59	ft
Critical Depth	0.02	ft
Critical Slope	3.04022	ft/ft
Velocity	0.15	ft/s
Velocity Head	0.00	ft
Specific Energy	0.13	ft
Froude Number	0.07	
Flow Type	Subcritical	

SVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

SVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.13	ft
Critical Depth	0.02	ft
Channel Slope	0.01000	ft/ft
Critical Slope	3.04022	ft/ft

Cross Section for Bioswale 5 - Qwq Calculations

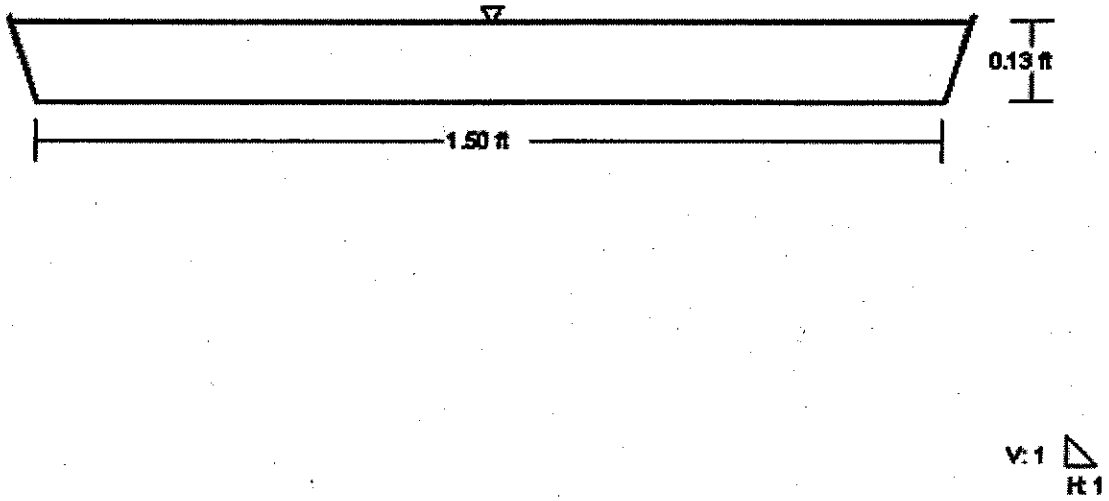
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Normal Depth	0.13	ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.50	ft
Discharge	0.03	ft³/s

Cross Section Image



Bioswale 6 - Qwq Calculations

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.42	ft
Discharge	0.09	ft^3/s

Results

Normal Depth	0.27	ft
Flow Area	0.41	ft^2
Wetted Perimeter	2.00	ft
Top Width	1.60	ft
Critical Depth	0.05	ft
Critical Slope	2.44333	ft/ft
Velocity	0.22	ft/s
Velocity Head	0.00	ft
Specific Energy	0.28	ft
Froude Number	0.08	
Flow Type	Subcritical	

EVC Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

EVC Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.27	ft
Critical Depth	0.05	ft
Channel Slope	0.01000	ft/ft
Critical Slope	2.44333	ft/ft

Cross Section for Bioswale 6 - Qwq Calculations

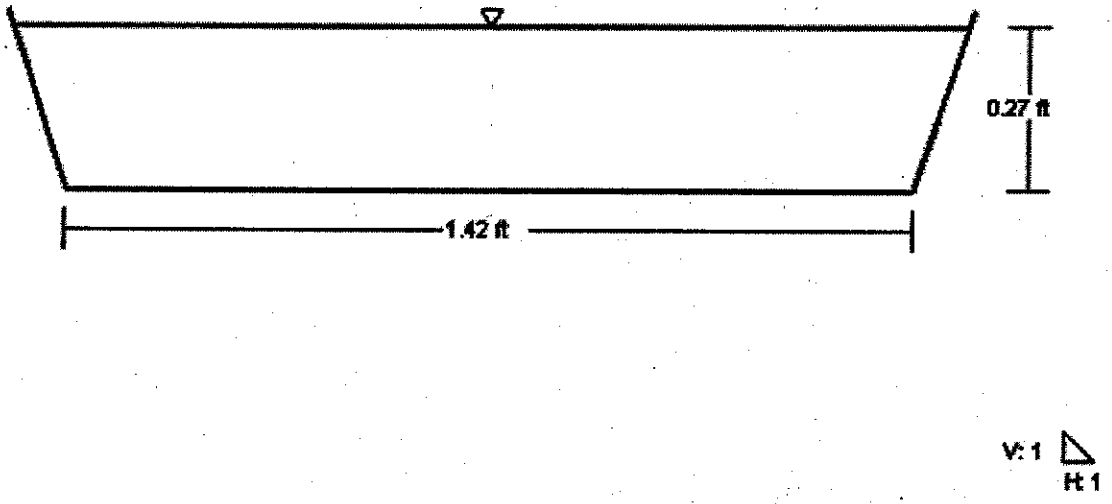
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.240	
Channel Slope	0.01000	ft/ft
Normal Depth	0.27	ft
Left Side Slope	0.33	ft/ft (H:V)
Right Side Slope	0.33	ft/ft (H:V)
Bottom Width	1.42	ft
Discharge	0.09	ft³/s

Cross Section Image



at the bank lining interface as well as maintaining a stable natural channel. The bank lining shall extend below calculated scour depths at the lining interface, and provide the minimum freeboard as outlined in Section 5.3.7.

Figure 5-5 Example of Bank-Lined Channel

5.4.3 Bio-Engineered Channel Stabilization

Traditionally, the "hard lined" channel stabilization techniques (i.e., riprap, gabion, concrete, etc.) have been used to stabilize erosion problem areas. Bioengineering is an applied science that integrates structural, biological and ecological principles to construct living structures (plant communities) for erosion, sediment, and flood control purposes. In many instances, "bio-engineered" channel stabilization measures can be safely utilized in place of "hard lined" measures, and these methods are encouraged whenever practical. Successful application of "bio-engineered" stabilization measures depends upon accurate diagnosis of the causes of channel stability problems, rather than just treating visible problem areas. Section 5.13 provides useful resources on bioengineered solutions for natural channel stabilization.

5.5 DESIGN CRITERIA – GRASS-LINED CHANNELS

This Section presents minimum design criteria for grass-lined channels. The design engineer is responsible for confirming that a channel design meets these criteria, the general open-channel criteria outlined in Section 5.3, and any special considerations for a particular design situation.

5.5.1 Longitudinal Channel Slopes

Grass-lined channel slopes are dictated by maximum permissible velocity requirements. Where the natural topography is steeper then desirable, drop structures may be utilized to maintain design velocities. Grass-lined channels shall have a minimum longitudinal gradient of 0.5 percent whenever practical (see Section 5.3.4).

5.5.2 Roughness Coefficient

Appendix A (Table A-4) provides appropriate Manning roughness coefficients for grass-lined channels. The Manning roughness coefficient used in evaluating channel capacity shall assume a mature channel (i.e., substantial vegetation with minimal maintenance). For evaluating channel slope and permissible velocity, the Manning roughness coefficient shall assume a freshly mowed condition.

Rock-Lined Trickle Channel

Rock-lined trickle channels shall have a minimum depth of 12 inches, with the Manning roughness coefficient determined as described in Section 5.7.17. The minimum stone size for rock-lined trickle channels shall be 6 inches.

5.5.3.2 Low Flow Channels

Low-flow channels are used to contain relatively frequent flows within a recognizable channel section. Low-flow channels are recommended for channels with a 100-year flow greater than 200 cfs, and at a minimum have the capacity to convey the 2-year flow event with no freeboard. The overall flow capacity of the channel shall include the capacity of the low flow channel.

Low-flow channels shall have a minimum depth of 12 inches. The side slopes of the low-flow channel shall be 2.5H:1V to 3H:1V whenever practicable. The main channel depth limitations (Section 5.5.5) do not apply to the low-flow channel area of the overall channel cross-section.

5.5.4 Bottom Width

The selection of the overall channel bottom width shall consider factors such as possible wetland mitigation requirements, constructability, channel stability and maintenance, multi-use purpose, and width of the low flow channel (if any).

5.5.5 Freeboard and Flow Depth

1.0 ft. for flows more than 10 cfs

Swales and grass-lined channels conveying a 100-year flow less than or equal to 10 cfs shall have a minimum freeboard of 6 inches. Grass-lined channels conveying larger discharges shall meet the minimum freeboard requirements outlined in Section 5.3.7.

The recommended design depth of flow for a grass-lined channel (outside the low flow channel area) is 5.0 feet for a 100-year flow of 1,500 cfs or less whenever practical. Excessive depths shall also be avoided in channels with greater design flows to the maximum extent practicable. Section 5.3.9 discusses access and safety for open channels, including thresholds for flow depth and velocity.

5.5.6 Side Slopes

Side slopes of a grass-lined channel shall be not be steeper than 3H:1V.

5.5.7 Grass Lining

Satisfactory performance of a grass-lined channel depends on constructing the channel with the proper shape and preparing the area in a manner to provide conditions favorable to vegetative growth. Between the time of seeding and the actual establishment of the grass, the channel is unprotected and subject to considerable damage unless interim erosion protection is provided. Jute, plastic, paper mesh, hay mulch may be used to protect the waterway until the vegetation becomes established.

The grass lining for channels may be seeded or sodded with a grass species that is adapted to the local climate and will flourish with minimal irrigation. Channel vegetation is usually established by seeding. In the more critical sections of some channels, it may be desirable to provide immediate protection by transplanting a complete sod cover. All seeding, planting, and sodding shall conform to local landscape recommendations.

5.5.8 Horizontal Channel Alignment and Bend Protection

The potential for erosion increases along the outside bank of a channel bend due to the acceleration of flow velocities on the outside part of the bend. Thus, it is often necessary to provide erosion protection in natural or grass-lined channels that otherwise would not need protection.

The minimum radius for channels with a 100-year runoff of 20 cfs or less shall be 25 feet. For channels carrying larger flows, horizontal channels alignment shall be limited based on the presence of erosion protection.

No channel bend protection is required along bends where the radius is greater than two times the top width of the 100-year water surface or the channel is constructed in erosion-resistant soils. Channels without bend protection are not allowed to have a curvature with a radius of less than two times the 100-year flow top width or less than 100 feet, whichever is greater.

Channels bends built in areas with erosive soil conditions shall always have erosion protection. When erosion protection is provided, channels are allowed to have minimum radius equivalent to 1.2 times the 100-year flow top width, but in no case shall the radius of curvature be less than 50 feet.

Erosion protection shall extend downstream from the end of the bend a distance that is equal to the length of the bend measured along the channel centerline.

5.5.9 Maintenance

Grass-lined channels shall be maintained to ensure that vegetation is removed or maintained on a regular basis to maintain the function of the facility. The project owner shall ensure that appropriate mechanism is in place to provide maintenance for the lifetime of the facility.

5.6 DESIGN CRITERIA – WETLAND BOTTOM CHANNEL

This Section presents minimum design criteria for wetland-bottom channels. The design engineer is responsible for confirming that a channel design meets these criteria, the general open-channel criteria outlined in Section 5.3, and any special considerations for a particular design situation.

When designing a wetland-bottom channel, the design engineer must consider both the interim ("new channel") condition and ultimate ("mature channel") condition. For the interim condition, the channel shall maintain non-erosive velocities under the design flow (Section 5.6.1). The design engineer shall evaluate the channel conveyance capacity under ultimate conditions (Section 5.6.2).

5.6.1 Longitudinal Channel Slope

The design engineer shall establish a longitudinal channel slope that maintains non-erosive velocities during the interim condition (a.k.a. the "new channel" condition), assuming minimal or immature wetland vegetation in the channel bottom. Table 5-13 (page 5-43) provides guidelines for maximum permissible velocity. Wetland- bottom channels shall maintain a minimum longitudinal slope of 0.5 percent whenever practicable (see Section 5.3.4).

The design engineer may increase the maximum permissible velocity when temporary erosion control measures are properly installed and maintained during the interim condition. The design engineer may also employ temporary grade control structures to reduce the effective slope of the channel during the interim condition. The Froude Number for wetland-bottom portions of a channel during the interim condition shall not exceed $FR = 0.7$. Where topography is steeper than desirable, permanent drop structures may be used to maintain design velocities.

ATTACHMENT F

OPERATION AND MAINTENANCE PROGRAM FOR TREATMENT BMPS

(NOTE: INFORMATION REGARDING OPERATION AND MAINTENANCE CAN BE OBTAINED FROM THE FOLLOWING WEB SITE:

HTTP://WWW.CO.SAN-DIEGO.CA.US/DPW/WATERSHEDS/LAND_DEV/SUSMP.HTML.)

CONTRACTOR NAME	CONTACT PERSON	PHONE NUMBER	JOB DESCRIPTION	STATUS

SITE INSPECTION RECORD

DATE OF INSPECT'N	DATE OF STORM	AMOUNT OF PRECIPITATION (INCHES)	OBSERVATION	FOLLOW UP WORK PERFORMED (IF NECESSARY)	NAME OF INSPECTOR

NATIONAL WEATHER SERVICE RECORDING (858) 289-1212

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) BEST MANAGEMENT PRACTICES (BMP) FOR L-14372

RESPONSIBLE PERSONNEL: RICHARD CAVANAUGH, PHONE NO. (858) 756-3771

INSPECTING EQUIPMENT: ALL CONTRACTORS AND SUBCONTRACTORS

INSPECTING OF BMP'S: RICHARD CAVANAUGH

TRAINING EMPLOYEES ABOUT BMP'S AFFECTING THEIR JOB: ALL CONTRACTORS AND SUBCONTRACTORS

SOURCE IDENTIFICATION:

THE PRIMARY POTENTIAL SOURCE OF POLLUTANTS IS SOIL DISTURBED BY CONSTRUCTION OPERATIONS. IF NOT CONTROLLED, SOIL MAY BE CARRIED OFF-SITE IN THE FORM OF SEDIMENT BY STORM WATER DISCHARGE. OTHER POTENTIAL SOURCES OF POLLUTANTS INCLUDE FUEL SPILLS AND LEAKS FROM THE DIFFERENT VEHICLES AND HEAVY EARTH MOVING EQUIPMENT USED DURING CONSTRUCTION OPERATIONS. ADDITIONALLY, SOLVENTS, OIL BASED PAINTS, AND OTHER MISCELLANEOUS HYDROCARBONS USED DURING CONSTRUCTION OPERATIONS ARE POTENTIAL SOURCES OF POLLUTANTS.

SITE PLAN GENERAL DISCUSSION AND ASSOCIATED INFORMATION:

THE GRADING PLAN CONSISTS OF SHEETS 1-8. THESE SHEETS ARE COMPILED FROM PLANS DEVELOPED AND PROCESSED THROUGH THE GOVERNING AGENCY. THEY MAY INCLUDE INFORMATION FROM MASS GRADING PLANS, ROUGH GRADING PLANS, EROSION CONTROL PLANS AND LANDSCAPING PLANS WHICH PERTAIN TO BEST MANAGEMENT PRACTICES PREVENTION. THEY COMPRISE THE BEST MANAGEMENT PRACTICES PLAN FOR CONTROL OF SEDIMENT AND OTHER POLLUTANTS DURING CONSTRUCTION OF THE PROJECT. SINCE CONSTRUCTION PROJECTS ARE DYNAMIC AND CHANGE FROM DAY TO DAY, SITE CONDITIONS MAY DIFFER FROM THOSE SHOWN ON THE SITE PLAN.

THE ULTIMATE GOAL AT THE END OF CONSTRUCTION IS THAT ALL SLOPES WILL BE PROTECTED BY MAN MADE OR NATURAL BMP'S AND THE TRANSFER OF SEDIMENT AND OTHER POLLUTANTS FROM THE SITE WILL NOT BE GREATER THAN THAT PRIOR TO DEVELOPMENT.

THE SITE PLAN SHOWS:

i. LOCATION OF CONTROL PRACTICES USED DURING CONSTRUCTION;
ii. AREAS OF CUT AND FILL;
iii. DRAINAGE PATTERNS AND SLOPES ANTICIPATED AFTER MAJOR GRADING ACTIVITIES ARE COMPLETED;
iv. AREAS OF SOIL DISTURBANCE;
v. SURFACE WATER LOCATIONS;
vi. AREAS OF POTENTIAL SOIL EROSION WHERE CONTROL PRACTICES WILL BE USED DURING CONSTRUCTION;
vii. EXISTING AND PLANNED PAVED AREAS AND BUILDINGS (IF KNOWN);
viii. VEHICLE STORAGE AND SERVICE AREAS; TO BE SHOWN BY CONTRACTOR
ix. AREAS OF EXISTING VEGETATION TO BE RETAINED.

REQUIRED DISCUSSION:

TOXIC MATERIALS THAT ARE KNOWN TO HAVE BEEN TREATED, STORED, DISPOSED, SPILLED, OR LEAKED IN SIGNIFICANT QUANTITIES ONTO THE CONSTRUCTION SITE:

NO SIGNIFICANT QUANTITIES OF TOXIC MATERIALS HAVE BEEN TREATED, STORED, DISPOSED, SPILLED OR LEAKED ON THE CONSTRUCTION SITE. DIESEL FUEL FOR CONSTRUCTION OPERATIONS HAS BEEN TEMPORARILY STORED ON-SITE IN ABOVE GROUND TANKS. MINOR SPILLING OF DIESEL FUEL OR MOTOR OIL MAY OCCUR DURING FUELING AND MAINTENANCE OPERATIONS. SUCH MINOR SPILLS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION SUPERINTENDENT WHO SHALL ARRANGE FOR PROPER COLLECTION AND DISPOSAL.

METHODS OF ON-SITE STORAGE AND DISPOSAL OF CONSTRUCTION MATERIALS:

POLLUTANTS (EXCLUDING SEDIMENT) ARE DISPOSED OF OFF-SITE AT DESIGNATED LANDFILLS, USING PROPER HANDLING TECHNIQUES, AND ACCOMPANIED BY REQUIRED MANIFESTATION.

THE NATURE OF FILL MATERIAL AND EXISTING DATA DESCRIBING THE SOIL ON THE CONSTRUCTION SITE:

COPIES OF SOILS INVESTIGATIVE REPORTS CAN BE OBTAINED WITH THE OWNER'S PERMISSION FROM THE SOILS ENGINEER LISTED ON THE GRADING PLAN.

POLLUTANTS (OTHER THAN SEDIMENT) THAT ARE LIKELY TO BE PRESENT IN STORM WATER DISCHARGES IN SIGNIFICANT QUANTITIES:

THERE ARE NO POLLUTANTS OTHER THAN SEDIMENT THAT ARE LIKELY TO BE PRESENT IN STORM WATER DISCHARGES IN SIGNIFICANT QUANTITIES.

CONSTRUCTION SITE AREA:

RUN-OFF COEFFICIENT PRIOR TO CONSTRUCTION: 0.30

RUN-OFF COEFFICIENT AFTER CONSTRUCTION: 0.80

% OF AREA IMPERVIOUS PRIOR TO CONSTRUCTION: 0%

% OF AREA IMPERVIOUS AFTER CONSTRUCTION: 96.5%

PRACTICES TO MINIMIZE CONTACT OF CONSTRUCTION MATERIALS, EQUIPMENT AND VEHICLES WITH STORM WATER:

FUELING, CLEANING AND MAINTENANCE SHOULD BE PERFORMED AT LOCATIONS THAT ARE FLAT, AND GEOGRAPHICALLY CONTAINED IN ORDER TO FACILITATE CLEANING UP ANY ASSOCIATED SPILLS. ALL TEMPORARY FUEL TANKS LOCATED ON-SITE SHALL BE CONTAINED WITHIN EARTHEN BERMS LINED BY VISQUEEN. VEHICLES AND EQUIPMENT SPREADS MAY BE MOVED FROM TIME TO TIME TO VARIOUS LOCATIONS WITHIN THE PROJECT FOR FUELING, CLEANING, AND MAINTENANCE.

CONSTRUCTION MATERIAL LOADING, UNLOADING AND ACCESS AREAS:

MATERIAL LOADING, UNLOADING AND ACCESS AREAS MAY OCCUR ANYWHERE ON-SITE THAT IS FLAT, CONTAINED BY GEOGRAPHY, AND IS NOT EXPECTED TO BE INUNDATED WITH WATER DURING RAIN STORMS.

PRECONSTRUCTION CONTROL PRACTICES (IF ANY) TO REDUCE SEDIMENT AND OTHER POLLUTANTS IN STORM WATER DISCHARGES:

DISCUSSIONS SHALL OCCUR BETWEEN SITE CONSTRUCTION MANAGEMENT PERSONNEL AND CONTRACTORS PRIOR TO CONSTRUCTION OF ANY GIVEN PHASE OF WORK (i.e. STORM DRAIN CONSTRUCTION). AT THOSE PRE-CON MEETINGS BMP AND IDEAS FOR OTHER CONSTRUCTION POLLUTION PREVENTION MEASURES WILL BE DISCUSSED.

EQUIPMENT STORAGE, CLEANING AND MAINTENANCE AREAS:

AS MENTIONED ABOVE, THE PRIMARY STORAGE, CLEANING AND MAINTENANCE AREAS WILL BE VARIOUS AREAS ON-SITE THAT ARE SECURED BY GEOGRAPHY AND NOT INUNDATED DURING RAINSTORMS.

BEST MANAGEMENT PRACTICES (BMP) FOR EROSION CONTROL AND SEDIMENT CONTROL:

THE FOLLOWING BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL ARE SHOWN ON THE ATTACHED PLANS. SOME ARE FOR SHORT TERM MITIGATION DURING THE CONSTRUCTION PROCESS AND OTHERS ARE FOR LONG TERM MITIGATION AFTER CONSTRUCTION IS COMPLETED.

TRAINING:

SITE DEVELOPMENT MANAGEMENT
SHALL ENSURE THAT ALL PERSONNEL INVOLVED IN INSPECTIONS, MAINTENANCE, AND REPAIR OF BMP'S, UNDERSTAND AND ARE QUALIFIED TO PERFORM SUCH TASKS. MEETINGS SHALL BE HELD PERIODICALLY BETWEEN THE VARIOUS CONTRACTORS AND THE ON-SITE CONSTRUCTION SUPERINTENDENT TO DISCUSS POTENTIAL PROBLEMS OR EXISTING PRACTICES THAT CAN BE IMPROVED IN ORDER TO PREVENT POLLUTION DURING FUELING, CLEANING OR MAINTENANCE OPERATIONS.

EROSION AND SEDIMENT CONTROL:

LISTED BELOW ARE BEST MANAGEMENT PRACTICES TO BE USED FOR SOIL STABILIZATION PURPOSES. THEY ARE SHOWN IN DETAIL ON THE FOLLOWING SHEETS. THESE BMP'S HAVE BEEN SELECTED FROM PROVEN METHODS USED FOR CONTROLLING EROSION WITHIN THE GENERAL PROJECT AREA.

SHORT TERM – CONSTRUCTION BMP'S:

- EARTHEN BERMS
- GRAVEL BAGS
- SILT FENCES
- TEMPORARY STORM DRAINS
- DESILTING BASINS
- NETTING AND MATTING
- GABION MATS AND CUT-OFF WALLS
- RIP RAP
- ENERGY DISSIPATORS
- BLADED SWALES

CONTROL PRACTICES TO REDUCE THE TRACKING OF SEDIMENT ONTO PUBLIC AND PRIVATE ROADS:
TRACKING OF SEDIMENT ONTO PUBLIC AND PRIVATE ROADS SHALL BE MITIGATED BY THE INSTALLATION OF GRAVEL PADS AT POINTS OF INGRESS AND EGRESS.

CONTROL PRACTICES TO REDUCE WIND EROSION:

GRADING OPERATIONS WILL COMPLY WITH COUNTY ORDINANCES RELATING TO DUST CONTROL. ADDITIONALLY, ALL FILL MATERIAL WILL BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND LANDSCAPED OR HYDROSEEDED AS REQUIRED.

NON STORM WATER MANAGEMENT:

THE ONLY NON STORM WATER DISCHARGES ANTICIPATED TO DRAIN OFF-SITE WILL BE FROM LANDSCAPE IRRIGATION, PIPE FLUSHING AND TESTING, STREET WASHING AND POSSIBLE DEWATERING OPERATIONS.

RECOGNIZED AND ALLOWED BY THE GENERAL PERMIT.

POST CONSTRUCTION STORM WATER MANAGEMENT:

PERMANENT BMP'S TO MITIGATE POLLUTANTS AFTER ALL CONSTRUCTION PHASES HAVE BEEN COMPLETED AT THE SITE FOLLOW. UNTIL SUCH BMP'S ARE ACCEPTED BY SUBSEQUENT ENTITIES, THEY WILL BE MAINTAINED BY THE OWNER.

LONG TERM – POST-CONSTRUCTION BMP'S:

- PERMANENT VEGETATION AND IRRIGATION PRACTICES
- ENERGY DISSIPATORS CUT-OFF WALLS
- RIP RAP
- WING WALLS AND HEAD-WALLS
- PERMANENT STORM DRAINS AND ATTACHED STRUCTURES

SITE MAINTENANCE, INSPECTION AND REPAIR:

INSPECTIONS OF THE CONSTRUCTION SITE SHALL BE CONDUCTED PRIOR TO ANTICIPATED STORM EVENTS AND AFTER ACTUAL STORM EVENTS TO IDENTIFY AREAS CONTRIBUTING TO A STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY AND TO EVALUATE WHETHER MEASURES TO REDUCE POLLUTANT LOADINGS IDENTIFIED ON THIS PLAN ARE ADEQUATE AND PROPERLY IMPLEMENTED IN ACCORDANCE WITH THE TERMS OF THE PERMIT OR WHETHER ADDITIONAL CONTROL MEASURES ARE NEEDED. A RECORD OF THE INSPECTIONS MUST INCLUDE THE DATE OF THE INSPECTION, THE INDIVIDUAL(S) WHO PERFORMED THE INSPECTION, AND THE OBSERVATIONS. THE PERSONS PERFORMING THE SITE INSPECTIONS WILL DECIDE THE APPROPRIATENESS OF IMPLEMENTING THE BMP'S SHOWN ON THIS PLAN AT ANY PARTICULAR CONSTRUCTION PHASE. ADDITIONALLY, THEY WILL DETERMINE IF THE APPROPRIATE BMP'S ARE WORKING, OR NEED TO BE REPAIRED, ENHANCED OR REPLACED.

MONITORING RECORDS:

RECORDS OF ALL INSPECTIONS, COMPLIANCE CERTIFICATIONS, AND NONCOMPLIANCE REPORTING MUST BE RETAINED FOR A PERIOD OF AT LEAST THREE YEARS. WITH THE EXCEPTION OF NONCOMPLIANCE REPORTING, DISCHARGES ARE NOT REQUIRED TO SUBMIT THESE RECORDS.

WATER CONSERVATION:

MAINTAIN WATER DISTRIBUTION EQUIPMENT
i. REPAIR LEAKS PROMPTLY
ii. SWEEP PAVED AREAS
iii. COLLECT DEBRIS PROMPTLY
iv. AND DISPOSE OF PROPERLY

STORM WATER PROTECTION NOTES:

1. DURING THE RAINY SEASON THE AMOUNT OF EXPOSED SOIL ALLOWED AT ONE TIME SHALL NOT EXCEED THAT WHICH CAN BE ADEQUATELY PROTECTED BY THE PROPERTY OWNER IN THE EVENT OF A RAINSTORM. 125% OF ALL SUPPLIES NEEDED FOR BMP MEASURES SHALL BE RETAINED ON THE JOB SITE IN A MANNER THAT ALLOWS FULL DEPLOYMENT AND COMPLETE INSTALLATION IN 48 HOURS OR LESS OF A FORECAST RAIN.

2. NO AREA BEING DISTURBED SHALL EXCEED 50 ACRES AT ANY GIVEN TIME WITHOUT DEMONSTRATING TO THE SAN DIEGO COUNTY DPW DIRECTOR'S SATISFACTION THAT ADEQUATE EROSION AND SEDIMENT CONTROL CAN BE MAINTAINED. ANY DISTURBED AREA THAT IS NOT ACTIVELY GRADED FOR 10 DAYS MUST BE FULLY PROTECTED FROM EROSION, UNTIL ADEQUATE LONG-TERM PROTECTIONS ARE INSTALLED. THE DISTURBED AREA SHALL BE INCLUDED WHEN CALCULATING THE ACTIVE DISTURBANCE AREA. ALL EROSION CONTROL MEASURES SHALL REMAIN INSTALLED AND MAINTAINED DURING ANY INACTIVE PERIOD.

3. THE PROPERTY OWNER IS OBLIGATED TO INSURE COMPLIANCE WITH ALL APPLICABLE STORMWATER REGULATIONS AT ALL TIMES. THE BMP'S (BEST MANAGEMENT PRACTICES) THAT HAVE BEEN INCORPORATED INTO THIS PLAN SHALL BE IMPLEMENTED AND MAINTAINED TO EFFECTIVELY PREVENT THE POTENTIALLY NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORMWATER QUALITY. THE MAINTENANCE OF THE BMP'S IS THE PERMITEE'S RESPONSIBILITY, AND FAILURE TO PROPERLY INSTALL OR MAINTAIN THE BMP'S MAY RESULT IN ENFORCEMENT ACTION BY THE COUNTY OF SAN DIEGO OR OTHERS. IF INSTALLED BMP'S FAIL, THEY MUST BE REPLACED WITH AN ACCEPTABLE ALTERNATE WITHIN 24 HOURS, OR AS SOON AS SAFE TO DO SO.

BMP MAINTENANCE OBLIGATIONS:

1. THE PERMITEE OF THE GRADING SHOWN ON THESE PLANS ACKNOWLEDGES THAT BMP'S (BEST MANAGEMENT PRACTICES) HAVE BEEN INCORPORATED INTO THIS PLAN AND WILL BE IMPLEMENTED AND MAINTAINED TO EFFECTIVELY MINIMIZE THE POTENTIALLY NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORMWATER QUALITY. FURTHER, THAT THE MAINTENANCE OF THE SELECTED STORMWATER BMP'S SHOWN ON THIS PLAN IS THEIR RESPONSIBILITY, AND FAILURE TO PROPERLY INSTALL OR MAINTAIN THE BMP'S MAY RESULT IN ENFORCEMENT ACTION BY THE COUNTY OF SAN DIEGO OR OTHERS.

ATTACHMENT G

FISCAL RESOURCES

ATTACHMENT C-Mechanisms to Assure Maintenance

FIRST CATEGORY:
The County should have only minimal concern for ongoing maintenance. The proposed BMPs inherently "take care of themselves", or property owners can naturally be expected to do so as an incident of taking care of their property

Typical BMPs:
- Biofilters (Grass swale, Grass strip, vegetated buffer)
- Infiltration BMP (basin, trench);

For Palma De La Reina by Newport Pacific, First Category BMP's are: Grass swales as shown on the BMP map that is a part of this SWMP. These BMP's will be maintained by the property owner as a part of their regular property maintenance. Annual maintenance is estimated at $1,250 per Appendix H of the SUSMP Manual.

Funding:
None Required.

Mechanisms to Assure Maintenance
See notes 1 through 5 on following page.

SECOND CATEGORY:
The County needs to assure ongoing maintenance. The nature of the proposed BMPs indicates that it is appropriate for property owners to be given primary responsibility for maintenance; on a perpetual basis (unless a storm water utility is eventually formed). However, the County (in a "backup" role) needs to be able to step in and perform the maintenance if property owner fails, and needs to have security to provide funding for such backup maintenance. Security for "backup" maintenance after the interim period (5 years) would not be provided, however primary owner maintenance responsibility would remain. If a storm water utility or other permanent mechanism is put into place, it could assume either a primary or backup maintenance role.

Typical BMPs:
- Biofilters;
- Small Detention Basins;
- Infiltration BMP, and;
- Single Storm Drain Inserts, Oil/Water separator, Catch basin insert & screens.

For Palma De La Reina by Newport Pacific, Second Category BMP's are: Biofiltration through the existing golf course.

Funding:
No maintenance funding is required for the second category BMP.

Mechanisms to Assure Maintenance:

1. Storm water Ordinance Requirement: The WPO requires this ongoing maintenance. In the event that the mechanisms below prove ineffective, or in addition to enforcing those mechanisms, civil action, criminal action or administrative citation could also be pursued for violations of the ordinance.

2. Public Nuisance Abatement: Under the WPO failure to maintain a BMP would constitute a public nuisance, which may be abated under the Uniform Public Nuisance Abatement Procedure. This provides an enforcement mechanism additional to the above, and would allow costs of maintenance to be billed to the owner, a lien placed on the property, and the tax collection process to be used.

3. Notice to Purchasers. Section 67.819(e) of the WPO requires developers to provide clear written notification to persons acquiring land upon which a BMP is located, or others assuming a BMP maintenance obligation, of the maintenance duty.

4. Conditions in Ongoing Land Use Permits: For those applications (listed in WPO Section 67.804) upon whose approval ongoing conditions may be imposed, a condition will be added which requires the owner of the land upon which the storm water facility is located to maintain that facility in accordance with the requirements specified in the SMP. Failure to perform maintenance may then be addressed as a violation of the permit, under the ordinance governing that permit process.

5. Subdivision Public Report: Tentative Map and Tentative Parcel Map approvals will be conditioned to require that, prior to approval of a Final or Parcel Map, the subdivider shall provide evidence to the Director of Public Works, that the subdivider has requested the California Department of Real Estate to include in the public report to be issued for the sales of lots within the subdivision, a notification regarding the maintenance requirement. (The requirement for this condition would not be applicable to subdivisions which are exempt from regulation under the Subdivided Lands Act, or for which no public report will be issued.)

6. BMP Maintenance Agreement with Easement and Covenant: An agreement will be entered into with the County, which will function three ways:
(a) It will commit the land to being used only for purposes of the BMP;
(b) It will include an agreement by the landowner, to maintain the facilities in accordance with the SMP (this obligation would be passed on to future purchasers or successors of the landowner, as a covenant); and
(c) It will include an easement giving the County the right to enter onto the land (and any necessary adjacent land needed for access) to maintain the BMPs.
This would be required of all applications listed in WPO Section 67.804. In the case of subdivisions, this easement and covenant would be recorded on or prior to the Final or Parcel Map.

ATTACHMENT H

CERTIFICATION SHEET

DECLARATION OF RESPONSIBLE CHARGE

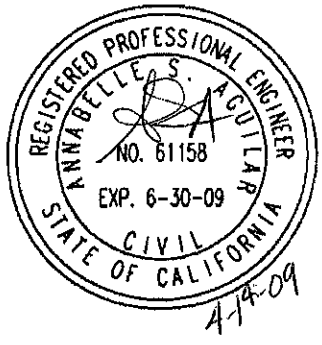
I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

BY: ANNABELLE S. AGUILAR DATE: 4/14/09
(PRINT NAME)

RCE NO.: 61158 EXPIRES: 06/30/2009

SAN DIEGUITO ENGINEERING, INC.
4407 MANCHESTER AVENUE, SUITE 105
ENCINITAS, CALIFORNIA 92024
PHONE: (760)753-5525



ATTACHMENT I

ADDENDUM

ATTACHMENT I – LID DISCUSSION

The following text is from the Municipal Storm Water Permit for San Diego County:

Each Copermittee shall require each Priority Development Project to implement LID BMPs which will collectively minimize directly connected impervious areas and promote infiltration at Priority Development Projects:
(a) The following LID site design BMPs shall be implemented at all Priority Development Projects as required below:

i. For Priority Development Projects with landscaped or other pervious areas, drain a portion of impervious areas (rooftops, parking lots, sidewalks, walkways, patios, etc) into pervious areas prior to discharge to the MS4. The amount of runoff from impervious areas that is to drain to pervious areas shall correspond with the total capacity of the project's pervious areas to infiltrate or treat runoff, taking into consideration the pervious areas' soil conditions, slope, and other pertinent factors.

The project proposes a very low ratio of pervious surface to proposed impervious surface. All proposed drainage from rooftops and roads are directed toward pervious areas.

ii. For Priority Development Projects with landscaped or other pervious areas, properly design and construct the pervious areas to effectively receive and infiltrate or treat runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope, and other pertinent factors.

Bio-swales located on the proposed pads are 1% slope at locations for post-development runoff. Water is conveyed offsite by existing storm drain pipes to a golf course that serves as a biofilter.

iii. For Priority Development Projects with low traffic areas and appropriate soil conditions, construct a portion of walkways, trails, overflow parking lots, alleys, or other low-traffic areas with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.

The proposed access road and driveways are constructed to the minimum allowable standards, paving has been minimized.

The below standards have been utilized in the design of this project:

(b) The following LID BMPs listed below shall be implemented at all Priority Development Projects where applicable and feasible.

i. Conserve natural areas, including existing trees, other vegetation, and soils.
ii. Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.
iii. Minimize the impervious footprint of the project.
iv. Minimize soil compaction.
v. Minimize disturbances to natural drainages (e.g., natural swales, topographic depressions, etc.)